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**Two New Species of the Genus *Melita* (Crustacea: Amphipoda)
from Shallow Waters of the Seto Inland Sea of Japan¹⁾**

By

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With Text-figures 1-10

Abstract Two new species of gammaridean amphipods of the genus *Melita*, *M. hoshinoi* and *M. quadridentata*, are described from shallow waters of the Seto Inland Sea of Japan. *Melita hoshinoi* is unique within the genus in having two basofacial spines on the peduncle of uropod 1. *Melita quadridentata* is characterized by markedly setose pereopods 6-7 and uropod 3. The two new species are clearly distinguishable from other congeners also by the shapes of male gnathopod 1 and female coxa 6. A biarticulate outer ramus of the uropod 3, which is usually regarded as an important characteristic of the genus *Abludomelita* (sensu Karaman, 1981) that distinguishes it from the genus *Melita*, is recognized in the two new species.

The present paper deals with two new species of the genus *Melita* Leach (Gammaridea, Melitidae) from the Seto Inland Sea of Japan. Although the materials of these two new species used for the present study were obtained only from a small area around the Mukaishima Marine Biological Station, they are not rare species. Actually they are very abundant there and have repeatedly been collected. The two new species markedly differ from other species of *Melita* previously reported from the same region (Yamato, 1987, 1988) in the morphology of the male gnathopod 1 and the female coxa 6, and the biarticulate uropod 3 which will be discussed from a taxonomic point of view. The new species seem to differ from the previously reported species also in the habitat because they have so far been found in subtidal sediments, while the latter species are known to occur in intertidal and brackish-water areas.

The figures of appendages are depicted from two specimens, which are the holotype and the allotype. The figures from subsidiary specimens are denoted after the dash, like "m2" and "f2". Type specimens will be deposited in the National Science Museum, Tokyo, after the completion of this study.

Abbreviations used in the figures. R., right; L., left; A, antenna; CX, coxa; E, epimeral plate; G, gnathopod; H, head; IP, inner plate; LL, lower lip; MD, mandible; MX, maxilla; MXP, maxilliped; OP, outer plate; PL, pleopod; PLS, pleosomite; PR, pereopod; T, telson; U, uropod; UL, upper lip; URS, urosomite; f, female; i, inner surface; o, outer surface.

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Melita hoshinoi n. sp.

(Figs 1–5)

(Japanese name: hoshinomerita yokoebi, new)

Material examined. Holotype: male, 9.8 mm. Paratypes: allotype, ovigerous female, 7.1 mm; "m2", male, 5.7 mm; "m3", male, 4.7 mm; "f2", immature female, 4.0 mm. All the specimens designated as the type series were collected on June 4, 1987, from coarse sands at a depth of about 8 m by dredge at the type locality. Type locality: "Tachibana-no-Su" (34°21'N, 133°13'E), submerged sand bank, the eastern part of the Mekari-Seto Strait, south of the Mukaishima Marine Biological Station. Besides the type series, 9 males, 6 females and 27 juveniles in the same sample from which the type series was selected, have been preserved without dissection for a future study. In addition to the types, some specimens on June 25, 1982, from the type locality, and on July 12, 1984, from the narrow strait (34°21'N, 133°10'E) between Shiju-shima Islet and Inno-shima Island were also examined.

Male. Body (Fig. 1): Head (Fig. 2–H) with minute rostrum; lateral cephalic lobes subround, with notch, forming accessory lobes ventrally. Eyes medium in size, slightly reniform; dark cores surrounded by light-colored ommatidia. Dorsal surface of pleosomites 1–3 and urosomite 1 (Figs 1–PLS3, URS1) with setae along posterior margin, without median dorsal teeth; on each side urosomite 2 (Fig. 1–URS2) with a small tooth, which bears several spines medially. Epimeral plates 1–3 (Figs 5–E1–3) produced ventroposteriorly, with minute setae along posterior margin; epimeral plates 2–3 with spines along ventral margin.

Antenna 1 (Fig. 2–A1): Peduncular article 1 very robust, with spines ventrally; article 2 elongate, longer than article 1, with groups of setae marginally; article 3 short. In holotype: main flagellum with 31 articles; accessory flagellum with 4 articles.

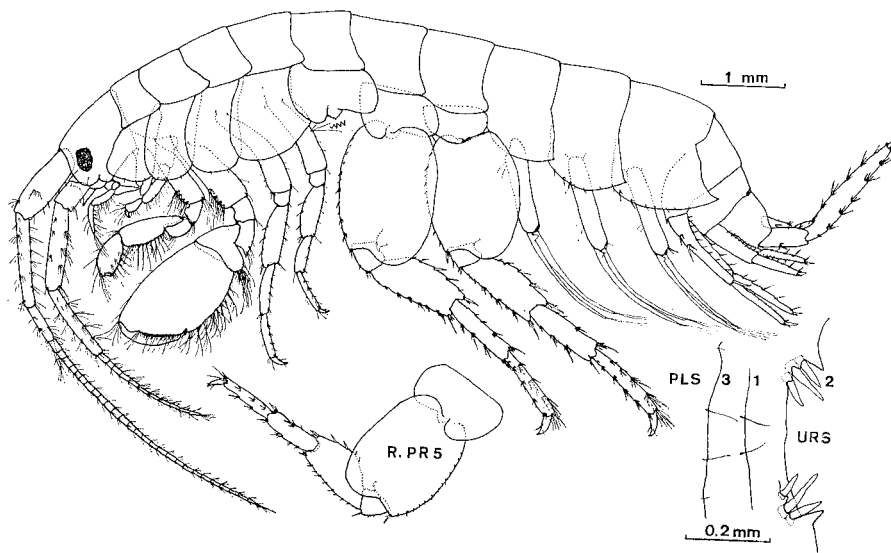


Fig. 1. *Melita hoshinoi* n. sp. Holotype, male, 9.8 mm.

Antenna 2 (Fig. 2–A2): Short; peduncles slightly longer than peduncles of antenna 1; peduncular article 1 round; article 2 with a thin spine at dorsodistal projection of outer surface, and with one small triangular projection at dorsal side of inner surface; antennal gland cone of article 2 pointed apically; article 3 with spines on inner surface, a long spine at ventrodistal corner; article 4 with short spines on proximal part of dorsal and inner surface, groups of setae marginally; article 5 slightly shorter than article 4, with groups of setae marginally, without spines. Flagellum

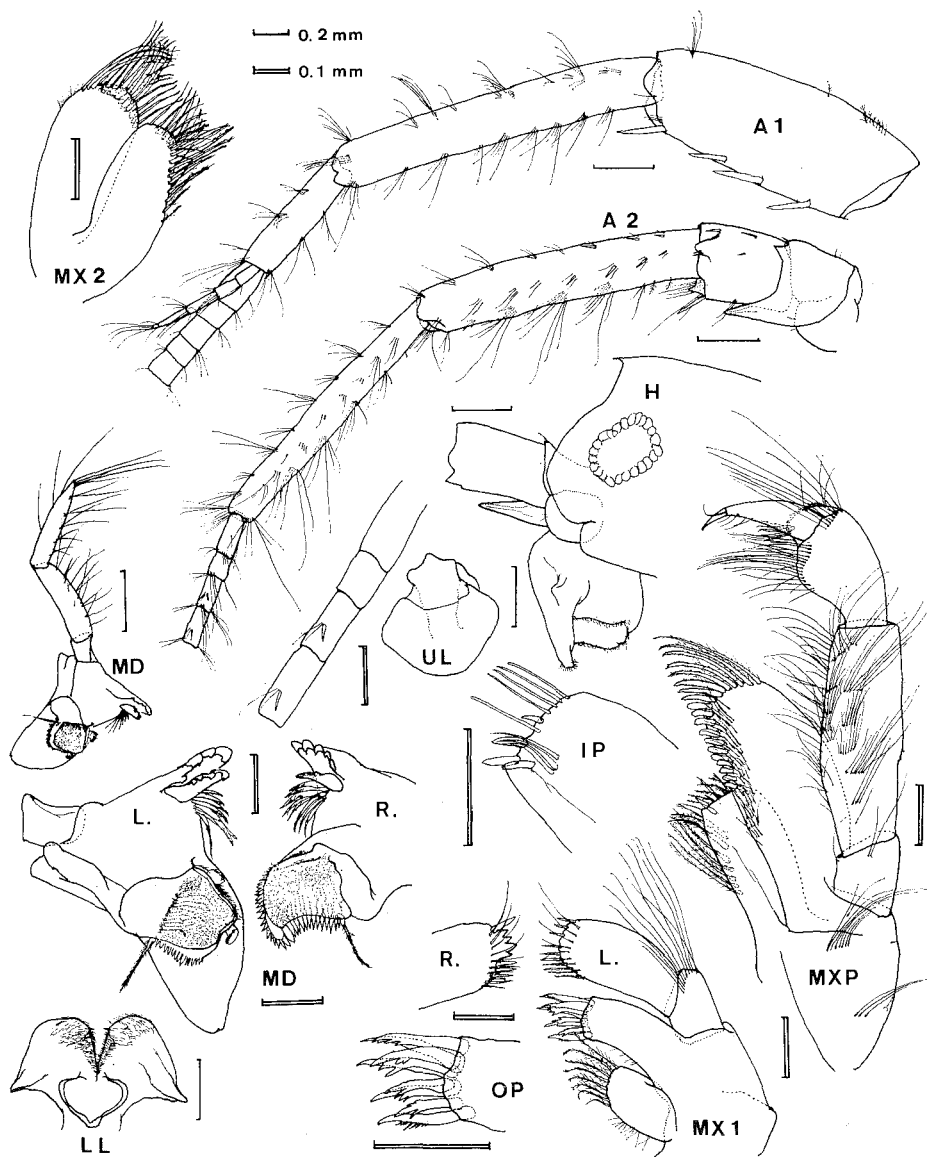


Fig. 2. *Melita hoshinoi* n. sp. Holotype, male, 9.8 mm.

setose, with spiniform setae on dorsal margin; in holotype with 12 articles.

Upper lip (Fig. 2-UL) almost hexagonal, tapered and truncated distally, setulose along ventral margin. Lower lip (Fig. 2-LL) setulose on medial to ventral part, with moderately developed inner lobe.

Mandible (Fig. 2-MD): Incisor 5-dentate; right lacinia mobilis lobate, bearing minute denticles on apical surface; left lacinia mobilis 4-dentate; spine row composed of pectinate blades; molar process well developed, with one pinnate seta and a longitudinal ridge extending to basal part of palp; cutting surface of molar asymmetrical, square and with two small accessory plates (left) and subrectangular (right). Palp 3-articulate; first article short, without projections and setae; second article with short setae only along medial margin; third article as long as second article, with setae along lateral and medial margins and on apex.

Maxilla 1 (Fig. 2-MX1): Inner plate quadrate, with plumose terminal setae. Outer plate (Fig. 2-OP) with 9 multidentate spines. Palp biarticulate; first article produced laterodistally, with many setae; second article slightly dilated, with thin subterminal spines on ventral surface; terminal margin asymmetrical, with tooth-like triangular projections (right) and thin spines (left).

Maxilla 2 (Fig. 2-MX2): Both plates with two rows of numerous terminal setae; inner plate with pectinate medial setae and short simple setae, lacking a dorsal oblique row of setae.

Maxilliped (Fig. 2-MXP): Inner plate (Fig. 2-IP) folding back dorsally, with terminal and subterminal robust spines and simple terminal setae on ventral surface, and with a row of medial and terminal plumose setae on dorsal surface. Outer plate setaceous on medial part of ventral surface, with a row of spatulate spines along medial margin to terminal; these spatulate spines successively increasing in length distally; distal spines pinnate. Palp 4-articulate, with setae on ventral surface and along medial margin; article 3 slightly dilated, setulose anterodistally, with a bunch of pectinate spines on ventral surface and many long setae; article 4 nailed, setulose on dorsal surface, with short setae along medial margin of subapical part.

Coxae 1-4 progressively increasing in length; ventral margin subround, with minute setae. Coxa 4 concave posteroproximally. Coxae 5 and 6 with round anterior lobe; coxa 7 unlobed. Coxal gills 2-6 round, simple; gill 2 slightly smaller than gill 3; gills 3-6 progressively decreasing in size.

Gnathopod 1 (Fig. 3-G1): Article 2 with numerous long setae on distal half of anterior margin and long setae on posterior margin; article 3 short, with setae at posterodistal margin; article 4 quadrate, with setae on posterodistal margin and dense setules on posteroproximal margin; article 5 long, setose on inner surface, with a row of groups of setae along anterior margin, with clusters of a long simple seta and some pectinate setae along posterior margin, setulose on anterodistal part, which bears many pectinate spines. Outer surface of article 6 (Fig. 3-G1-o) roundly produced at middle; inner surface (Fig. 3-G1-i) broadly hollowed at basal part of palm, with a protuberance at middle, roundly produced anterodistally; palmar margin short, convex, with thin bifurcate palmar spines and minute subterminal setae, and with

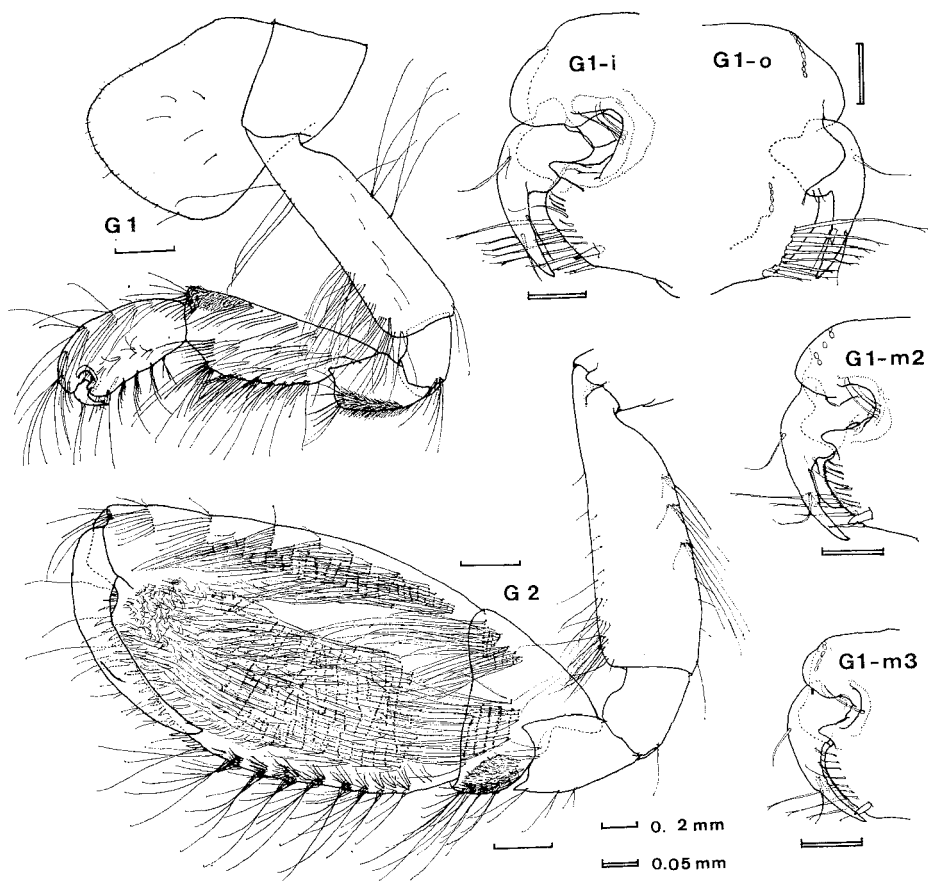


Fig. 3. *Melita hoshinoi* n. sp. Holotype, male, 9.8 mm; "m2", male, 5.7 mm; "m3" male, 4.7 mm.

no robust spines, only with a short defining spine; posterior margin with clusters of a simple seta and pectinate setae; anterior margin with groups of long setae. Dactyl short, strongly bulging basally, matching hollow of palm, nailed apically, with one seta on outer margin, several setae at subapical part and minute setae on basal bulge.

Gnathopod 2 (Fig. 3-G2): Article 2 with long setae along anterodistal and posterior margins; article 3 short; article 4 short, pointed posterodistally; article 5 short, cup-shaped, setulose, with clusters of setae along posterior margin and several rows of long setae on inner surface. Article 6 almost trapezoid, slightly rounded along posterior margin; inner surface covered with numerous long setae, anteroventrally forming a slightly ridged channel which is lined with plumose setae; dorsal side of inner surface with many groups of overlapping setae; outer surface with no armature; posterior margin with clusters of a simple seta and pectinate setae; palmar margin with uniform spines, mixed with sparse long setae. Dactyl stout, fitting into channel of article 6, with indistinct obtuse nail.

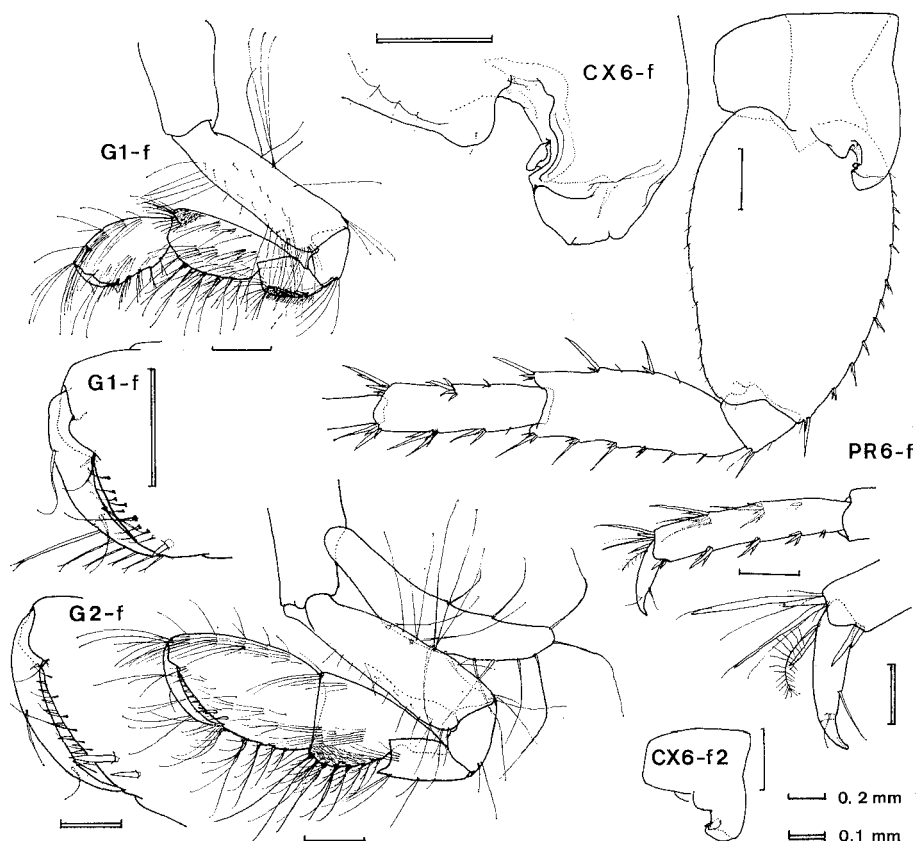


Fig. 4. *Melita hoshinoi* n. sp. Allotype, female, 7.1 mm; "f2", female, 4.0 mm.

Pereopods 3 and 4 similar to each other, pereopod 4 slightly shorter than pereopod 3. Article 2 of pereopods 3–4 recurved, article 3 short; articles 4–6 linear; article 4 with spines along anterior margin and short setae along posterior margin; articles 5–6 with spines along posterior margin and short setae along anterior margin. Dactyl simple, without process, nailed apically, with a simple seta on inner margin, a minute subapical seta, and a plumose seta on outer margin.

Pereopods 5–7 similar to each other; pereopods 6–7 larger than pereopod 5. Article 2 of pereopods 5–7 broadly expanded and minutely serrate posteriorly, lobed posterodistally, with very minute setae along posterior margin and with spines along anterior margin; article 3 short; article 4 slightly robust, with groups of spines marginally, strongly spinose along anterior margin; articles 5–6 linear, with groups of spines marginally; dactyl as in pereopods 3 and 4.

Pleopods 1–3 (Fig. 5–PL3): Pleopods 1–3 similar to each other; peduncle of pleopods 1–2 with two coupling spines and a short seta; peduncle of pleopod 3 slightly shorter and more setose than those of pleopods 1 and 2, with a long spine, a minute seta, and two coupling spines. Basal article of each inner ramus with plumose clothespin spines on medial margin. Basal article of each outer ramus with a triangular

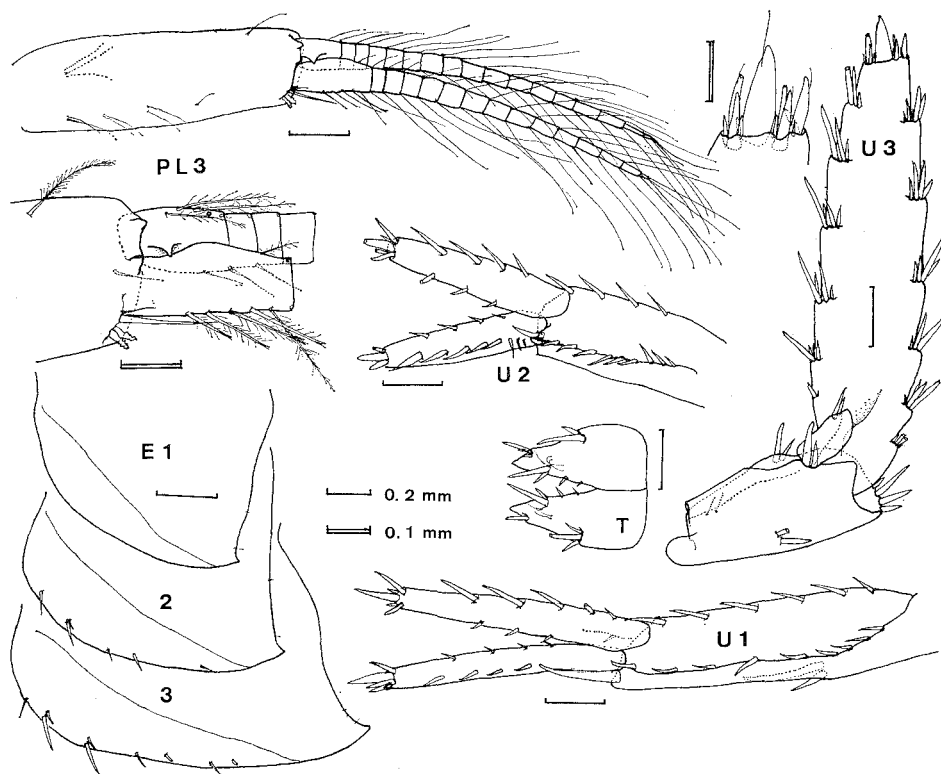


Fig. 5. *Melita hoshinoi* n. sp. Holotype, male, 9.8 mm.

process.

Uropods 1 and 2 (Figs 5-U1, U2): Spinose along dorsal surface of peduncles and of both rami and at apices of rami. Peduncle of uropod 1 with two basofacial spines (in holotype two clusters of two spines on left (Fig. 1), one cluster of two spines on right (Fig. 5-U1), but in many other specimens one cluster of two (occasionally three) spines on both sides), and with a long distolateral spine.

Uropod 3 (Fig. 5-U3): Peduncle much shorter than outer ramus, with short spines on outer surface, on dorsal margin, and at ventrodistal part. Inner ramus short, scale-like, rounded apically, with several apical spines. Outer ramus biarticulate, broad and robust, with groups of short stout spines marginally; second article short, surrounded by smaller spines, with minute setules subapically.

Telson (Fig. 5-T): Incised to base. Each lobe pointed apically, with two groups of subapical spines, short medial spines, and a group of spines along lateral margin.

Female. Smaller than male. Antennae: Number of flagellar articles less than in male (in allotype, 3, 23 and 9 articles in accessory, main flagellum of antenna 1, and flagellum of antenna 2, respectively).

Gnathopod 1 (Fig. 4-G1-f): Articles 2-4 as in male; article 5 shorter than in

male. Article 6 quadrate, not hollowed on inner surface; palmar margin slightly convex, without robust strong spines, only with a small defining spine.

Gnathopod 2 (Fig. 4-G2-f): Much smaller than in male; article 5 longer than in male. Article 6 ovoid, with sparse setae on inner surface; palmar margin oblique, with a row of short spines, a row of minute setae, and two strong spines at corner of palmar margin. Dactyl nailed, with a seta on anterior margin, and setae at sub-apical part.

Pereopod 6 (Fig. 4-PR6-f): Article 2 broad basally, tapered distally; anterior lobe of coxa 6 (Fig. 4-CX6-f) hooked; apical part round, forming shallow hollow; subapical part with small projection; basal part bearing ovoid plate with minute setae.

Oostegites 2-5 narrow, with long setae.

Etymology. The specific name of this new species is dedicated to the late Dr. T. Hoshino of Mukaishima Marine Biological Station, Hiroshima University, who was a taxonomist of marine sponges, and was always encouraging me.

Remarks. This new species is unique within the genus *Melita* in having a cluster of two basofacial spines on the peduncle of uropod 1 (facial spines on the proximo-lateral part of the peduncle). Although the spines of that portion have often been overlooked in many species of *Melita* and rarely mentioned in the description, most melitid species usually bear a single basofacial spine, except *M. bulla* Karaman, 1978, from the Mediterranean, *M. hergensis* Reid, 1939, from the European coast of the Atlantic (in Lincoln, 1979), and *M. laevidorsum* Stephensen, 1944, from Korea. The first two species have a row of three spines along the ventral margin on uropod 1 and the last has two spines on it; however, these species have no paired spines.

This new species is also characterized by the strongly spinated telson, the biarticulate outer ramus of uropod 3, and the dorsolateral tooth on each side of urosomite 2. *Melita rylovae* Bulychева, 1955 (see Yamato, 1987) and *M. pilopropoda* Hirayama, 1987, both from Japanese waters, closely resemble this new species in these characteristics. However, these three species are clearly distinguishable from each other by the shape of article 6 of male gnathopod 1. The article 6 of gnathopod 1 of *M. rylovae* bears several robust palmar spines and a quadrate anterodistal lobe, that of *M. pilopropoda* two stout spines near the hollow of the inner surface and a small falcate anterodistal lobe, and that of this new species one small spine at the palmar corner and a roundly produced anterodistal lobe. *Melita rylovae* is also different from this new species in the arch-shaped dorsolateral teeth on pleosomites 1-3, the shape of female coxa 6 with a more elongated hooked lobe, and the absence of lateral setae on maxilla 1 palp. *Melita pilopropoda* also differs from this new species in having a single spine on the palmar corner of female gnathopod 2.

***Melita quadridentata* n. sp.**

(Figs 6–10)

(Japanese name: yotsuhamerita yokoebi, new)

Material examined. Holotype: male, 7.2 mm. Paratypes: allotype, ovigerous female, 4.8 mm; "m2", male, 4.8 mm; three immature females, "f2", 4.3 mm, "f3", 3.5 mm, "f4", 3.0 mm. All the specimens designated as the type series were collected on July 13, 1988, from coarse shell sands between large rocks, containing rich silt, at a depth of about 12 m by SCUBA diving at the type locality. Type locality: North eastern part of Shimoebu Islet (34°22'N, 133°13'E), east of Mukaishima Marine Biological Station. Besides the type series, 23 males, 10 females and 10 juveniles in the samples, from which the types were selected, have been preserved without dissection for a future study. In addition to the types, "f5", ovigerous female, 5.4 mm collected on July 8, 1987, and two males and a female, collected on June 25, 1984, from the type locality, were also examined.

Male. Body (Fig. 6): Head (Fig. 7–H) with minute rostrum; lateral cephalic lobes subround, with notch, forming truncate accessory lobes ventrally. Eyes medium in size, slightly reniform; dark cores surrounded by light-colored ommatidia. Dorsal surface of pleonal segments smooth, without median dorsal teeth; pleosomite 3 convex dorsolaterally; urosomite 2 (Fig. 6–URS2) with two teeth embracing a single spine on each dorsolateral side. Epimeral plates 1–3 produced ventroposteriorly, with minute setae along posterior margin; epimeral plates 1 and 2 with spines along ventral margin.

Antenna 1 (Fig. 7–A1): Peduncular article 1 robust, with spines ventrally; article 2 elongate, longer than article 1, with groups of setae marginally; article 3 very short, one third the length of article 2. In holotype: main flagellum with at least 41 articles (distal tip of flagellum is missing), accessory flagellum with 6 articles.

Antenna 2 (Fig. 7–A2): Elongate; peduncles reaching to proximal third of the

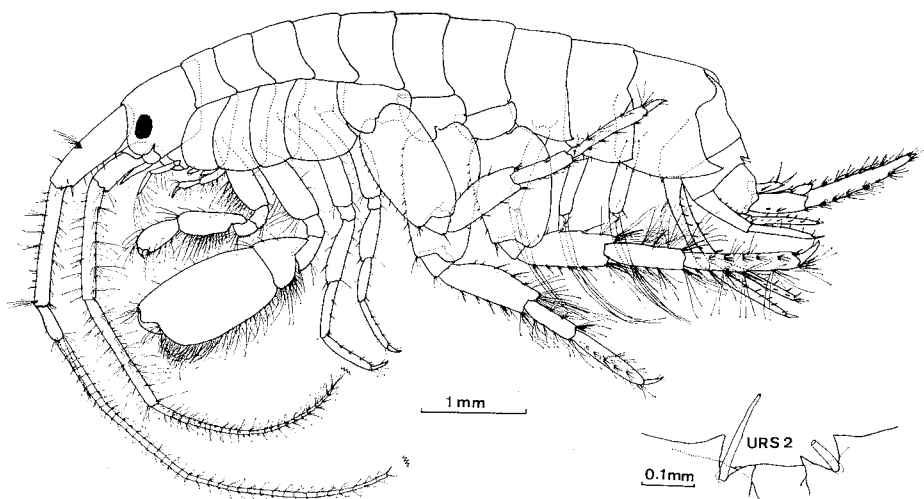


Fig. 6. *Melita quadridentata* n. sp. Holotype, male, 7.2 mm.

flagellum of antenna 1; peduncular article 1 slightly ovoid; article 2 with a thin spine at dorsodistal projection of outer surface, and with one small triangular projection at dorsal side of inner surface; antennal gland cone of article 2 elongated, pointed apically; article 3 with thin spines on inner surface, without spines at ventro-

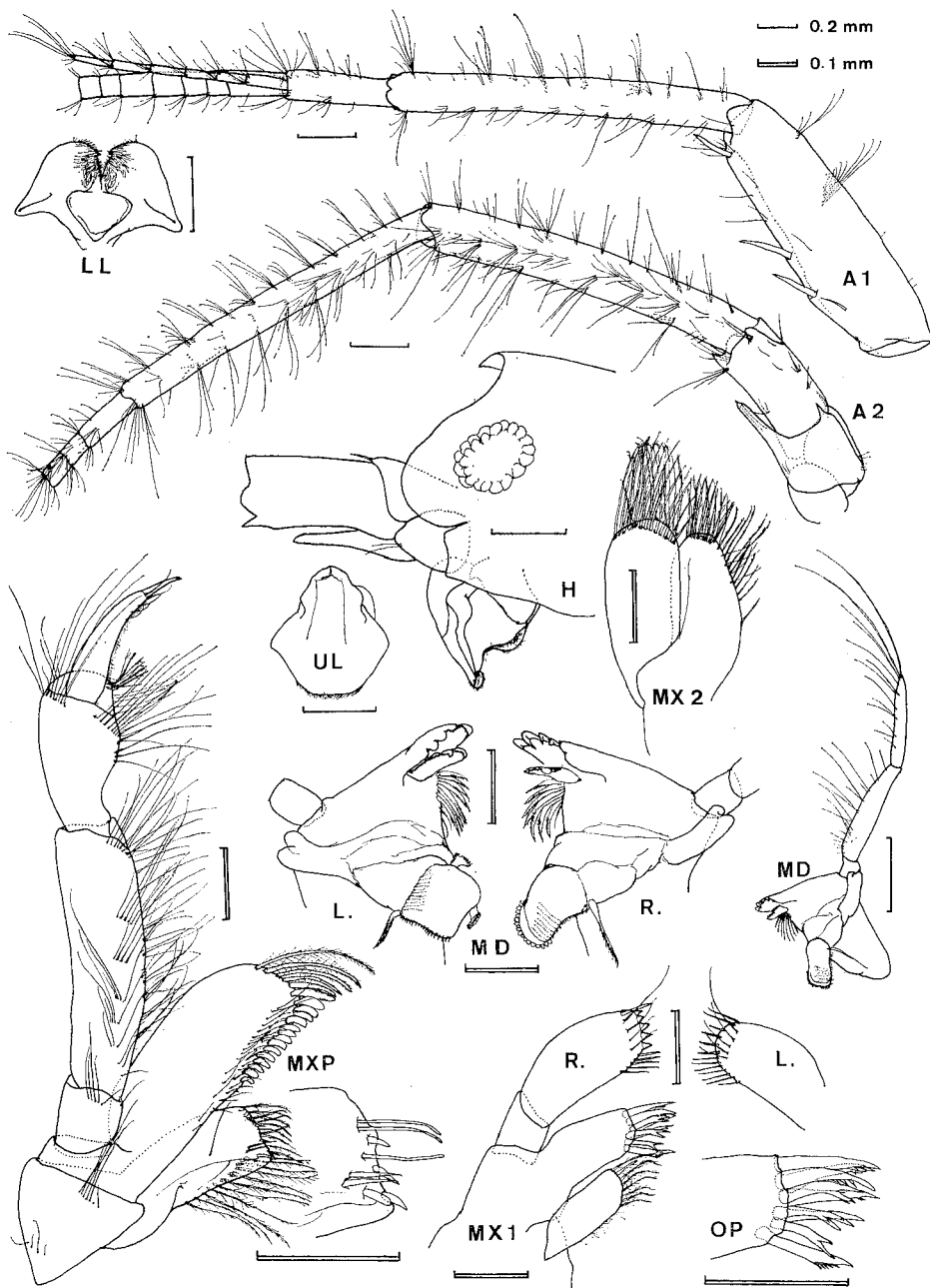


Fig. 7. *Melita quadridentata* n. sp. Holotype, male, 7.2 mm.

Mouth parts (Fig. 7): Very similar to the former species, *M. hoshinoi* n. sp., but different in the following points: third article of mandibular palp setose only along medial margin, lacking setae along lateral margin; first article of maxilla 1,

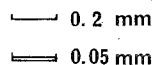


Fig. 8. *Melita quadridentata* n. sp. Holotype, male, 7.2 mm; "m2", male, 4.8 mm.

lacking lateral setae.

Coxae 1–7 and coxal gills 2–6 as in *M. hoshinoi* n. sp.

Gnathopod 1 (Fig. 8–G1): Article 2 with numerous long setae on distal half of anterior margin and long setae on posterior margin; article 3 short, with setae at posterodistal margin; article 4 quadrate, with setae on posterodistal margin and dense setules on posteroproximal margin; article 5 long, setose on inner surface, with a row of setae along anterior margin, with clusters of a long simple seta and pectinate setae along posterior margin, setulose on anterodistal part, which bears many pectinate spines. Inner surface of article 6 hollowed at the basal part of palm, with a protuberance at middle, narrowly produced anterodistally; palmar margin oblique, with thin bifurcate palmar spines, minute subterminal setae, some robust spines (5 spines in holotype), and a small triangular process; posterior margin with clusters of a simple seta and pectinate setae; anterior margin with groups of long setae. Dactyl short, slightly bulging basally, matching the hollow of palm, nailed apically, with one seta on outer margin, several setae at subapical part, and minute setae on the basal bulge.

Gnathopod 2 (Fig. 8–G2): Article 2 with long setae along anterodistal and posterior margins; article 3 short; article 4 short, posterodistally pointed; article 5 short, cup-shaped, setulose, with clusters of setae along posterior margin, and with rows of long setae on inner surface. Article 6 almost trapezoid, slightly expanded distally, ventral half of inner surface covered with numerous long setae, anteroventrally forming a slightly ridged channel which is lined with plumose setae; dorsal side of inner surface with groups of slightly overlapping sparse setae; outer surface with no armature; posterior margin with clusters of a simple seta and pectinate setae; palmar margin with dense long setae, intermixed with short uniform spines. Dactyl stout, fitting into channel of article 6, and with indistinct obtuse nail.

Pereopods 3 and 4 similar to each other, pereopod 4 slightly shorter than pereopod 3. Article 2 of pereopods 3–4 recurved, article 3 short; articles 4–6 linear; article 4 with thin spines along anterior margin and short setae along posterior margin; articles 5–6 with spines along posterior margin and short setae along anterior margin. Dactyl simple, without process, nailed apically, with a simple seta on inner margin, a minute subapical seta, and a plumose seta on outer margin.

Pereopods 5–7 similar to each other in shape; pereopods 6–7 larger and more setose than pereopod 5. Article 2 of pereopods 5–7 slightly expanded and minutely serrate posteriorly, lobed posterodistally, with very minute setae along posterior margin and with spines along anterior margin; article 3 short. Articles 4–6 of pereopod 5 with groups of spines marginally. Article 4 of pereopods 6–7 with groups of spines marginally and long setae apically; articles 5–6 linear, marginally with bunches of many long setae, intermixed with several spines. Dactyl as in pereopods 3 and 4.

Pleopods 1–3 (Fig. 10–PL3): As in *M. hoshinoi* n. sp.

Uropods 1 and 2 (Figs 10–U1, U2): Spinose along dorsal margins of peduncles and both rami, and at apices of rami. Peduncle of uropod 1 with single ventrofacial

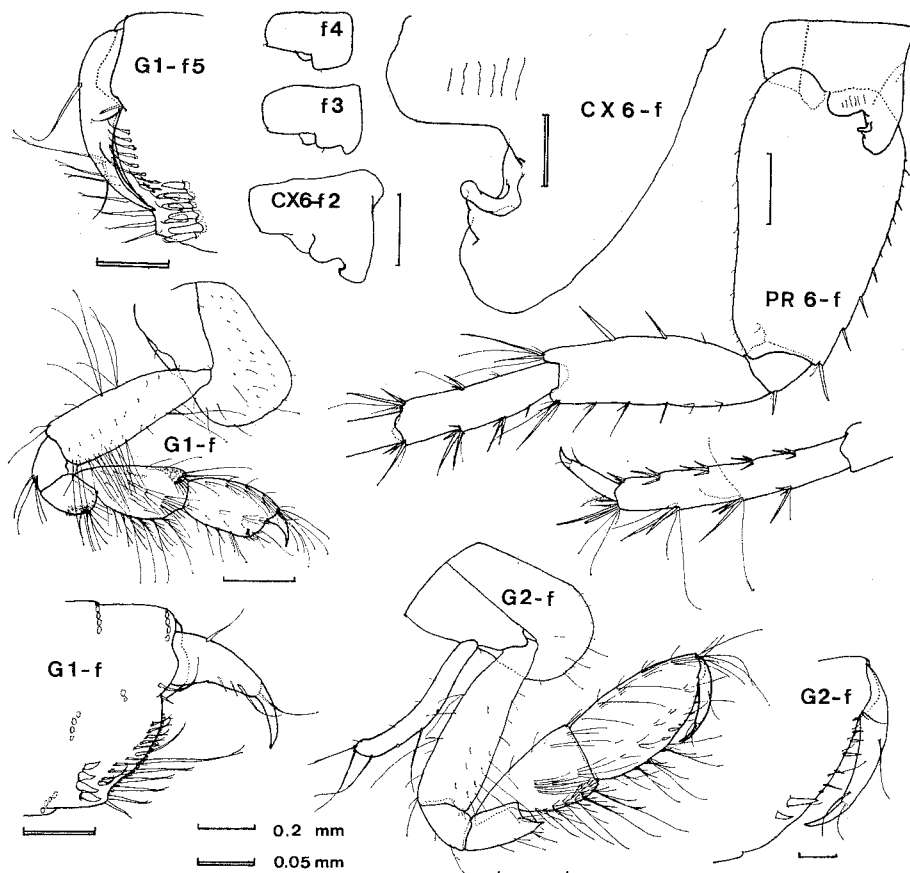


Fig. 9. *Melita quadridentata* n. sp. Females. Allotype, 4.8 mm; "f2", 4.3 mm; "f3", 3.5 mm; "f4", 3.0 mm; "f5", 5.4 mm.

spine and one long distolateral spine.

Uropod 3 (Fig. 10-U3): Peduncle much shorter than outer ramus, with spines on outer surface, on dorsal margin, and at ventrodistal part. Inner ramus short, scale-like, slightly pointed apically, with apical spines. Outer ramus biarticulate, elongate, (in holotype slightly warped), marginally with clusters of long spines, intermixed with long setae; medial margin with more clusters than lateral one; second article slightly elongate, surrounded by shorter spines.

Telson (Fig. 10-T): Incised to base. Each lobe pointed apically, with clusters of long and short spines at subapical part, and along lateral and medial margins.

Female. Smaller than male. Antennae: Number of flagellar articles less than in male (in allotype 4, 22, and 11 articles in accessory, main flagellum of antenna 1, and flagellum of antenna 2, respectively).

Gnathopod 1 (Fig. 9-G1-f): Articles 2-4 as in male; article 5 shorter than in male. Article 6 quadrate, not hollowed on inner surface; palmar margin slightly

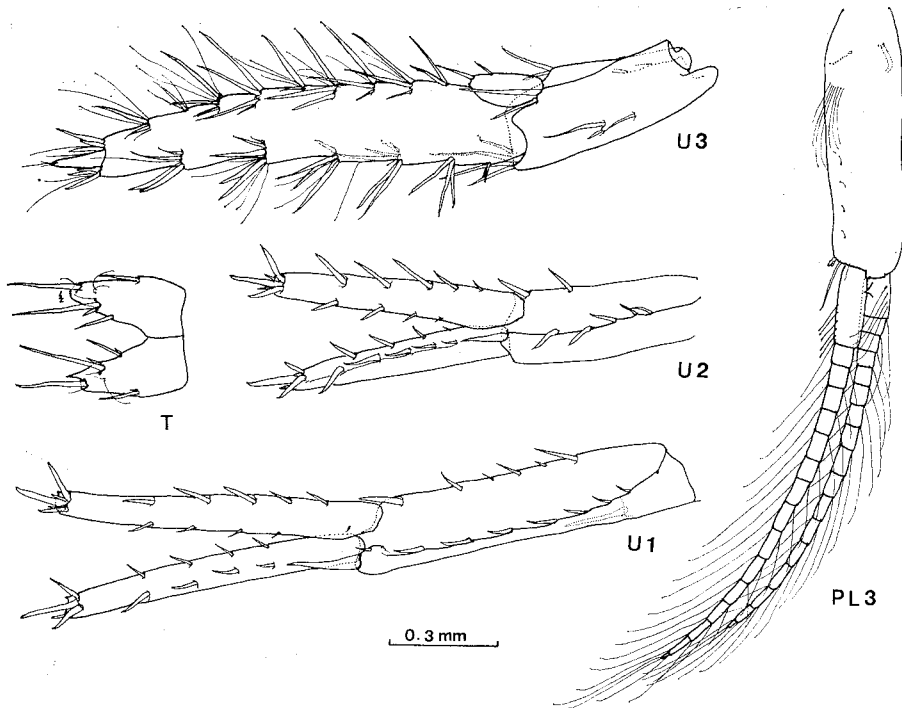


Fig. 10. *Melita quadridentata* n. sp. Holotype, male, 7.2 mm.

convex, with some robust spines (4 spines in allotype, 10 in "f5"). Dactyl not bulging basally, nailed apically.

Gnathopod 2 (Fig. 9-G2-f): Much smaller than in male; article 5 longer than in male. Article 6 ovoid, with sparse setae on inner surface; palmar margin oblique, with a row of short spines, a row of minute setae, and two strong spines at corner of palmar margin. Dactyl nailed, with a seta on anterior margin, and setae at subapical part.

Pereopods 6-7 (Fig. 9-PR6-f): Setation of articles 4-6 weaker than male; article 2 tapered distally; anterior lobe of coxa 6 (Fig. 9-CX6-f) hooked; apical part round; subapical part with bulging projection; basal part bearing round plate with some facial wrinkles.

Oostegites 2-5 narrow, with long setae.

Etymology. The specific name refers to four teeth on the dorsal side of urosomite 2.

Remarks. This new species is characterized by the setosity of pereopods 6-7 and uropod 3. *Melita planaterga* Kunkel, 1910, reported by Karaman (1981) from Bermuda has similar setose pereopods 5-7, but this new species is setose only on pereopods 6-7 and not setose on pereopod 5. *Melita kauerti* Barnard, 1972, from Australia (Barnard, 1972a) bears a setose uropod 3, but differs in the uniarticulate

outer ramus of uropod 3 and the weakly spinated telson lacking spines along the lateral margin.

Apart from the setosity, this new species resembles the following species in the presence of the robust palmar spines on gnathopod 1: *M. rylovae*, *M. laevidorsum* (see above) and *M. pahuwai* Barnard, 1970, from Hawaii. *Melita pahuwai* and *M. laevidorsum*, however, are clearly different from this new species in the uniarticulate uropod 3, and *M. rylovae* is different from this new species in the quadrate anteriodistal lobe of article 6 of gnathopod 1 and the robust article 4 of pereopods 6–7.

Four dorsal teeth on urosomite 2 (a pair of teeth embracing one spine, on each dorsolateral side of urosomite 2) have already been reported in some species of *Melita*, though most of the species that have four teeth on urosomite 2 also have a median tooth on urosomite 1. The following three species agree with this new species in the dorsal dentation of the urosomites: *M. oregonensis* Barnard, 1954, from the Pacific coast of North America, *M. coroninii* Heller, 1886, from the Mediterranean (see Karaman, 1982 in Ruffo et al., 1982), and *M. inaequistylis* (Dana, 1852) from New Zealand (see Barnard, 1972b). *Melita oregonensis* is clearly distinguishable from this new species by the uniarticulate outer ramus of uropod 3, the shape of female coxa 6, the more strongly spinated telson, the less setose male gnathopod 2, the robust pereopod 5, etc. *Melita coroninii* differs in the uniarticulate outer ramus of uropod 3. *Melita inaequistylis* resembles this new species in bearing a biarticulate uropod 3, but differs in the weakly spinated telson lacking spines along medial and lateral margins, the female coxa 6 with a ventrally toothed basal plate, and the gnathopod 1 with only two small spines at the palmar corner.

Note on the Biarticulation of Uropod 3 in *Melita* (sensu Karaman, 1981)

The two new species described in this paper bear a biarticulate outer ramus of uropod 3. The second article of the outer ramus of uropod 3 is present in all developmental stages, and is easily distinguishable from adjacent spines by its position at the center of the apex of the first article and by its larger and triangular form. The taxonomic significance of the second article in the melitid group has been discussed.

Karaman (1981) based the separation of separated *Abludomelita* from *Melita* (s.l.) on only two characters: presence of a dorsal oblique row of setae on maxilla 2 and presence of a second article on the outer ramus of uropod 3. As the setation of maxilla 2 had not been critically examined for most melitid species, he roughly transferred the species bearing a biarticulate uropod 3 to the genus *Abludomelita*, even those species in which the features of maxilla 2 were unknown. Zeidler (1989) criticized Karaman's revision, because "the two characters on which *Abludomelita* is based are plesiomorphic" and "the genus is at best paraphyletic and probably polyphyletic", and above all, his new species *Melita plumulosa*, which bears a biarticulate uropod 3 and no oblique row of setae on maxilla 2, does not readily fit either *Melita* or *Abludomelita*.

Both of the two new species in this paper, as in *M. plumulosa*, bear a biarticulate outer ramus of uropod 3 and no dorsal oblique row of setae on maxilla 2. In Japanese waters there are two other species of *Melita*, *M. pilopropoda* and *M. rylovae*, which have the same characteristics as the two new species. These four Japanese species are closely related in general morphology to other Japanese species of *Melita* which bear a uniarticulate uropod 3 (Yamato, 1987). I agree with Zeidler's opinion that the loss of the second article of uropod 3 is of no generic significance, as far as *Melita* (s. str.) is concerned. At present, setation of maxilla 2 is the sole diagnostic character distinguishing between *Melita* and *Abludomelita*, although Mrs. Norma E.L. Bousfield are preparing to diagnose these taxa by more characters (personal communication). Hence, the present new species have been assigned to the genus *Melita* (sensu Karaman, 1981) in this paper.

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References

- Barnard, J.L. 1954. Marine Amphipoda of Oregon. Oregon State Monographs, Studies in Zoology, 8: 1-103, pls 1-33.
- . 1970. Sublittoral Gammaridea (Amphipoda) of the Hawaiian Islands. Smiths. Contr. Zool. 34: 1-286.
- . 1972a. Gammaridean amphipods of Australia, Part I. Ibid., 103: 1-333.
- . 1972b. The Marine fauna of New Zealand: Algae-living littoral Gammaridea (Crustacea Amphipoda). New Zealand Oceanogr. Inst. Mem., 62: 7-216.
- Hirayama, A. 1987. Taxonomic studies on the shallow water gammaridean Amphipoda of West Kyushu, Japan. VII. Melitidae (*Melita*), Melphidippidae, Oedicerotidae, Philantidae and Phoxocephalidae. Publ. Seto Mar. Biol. Lab., 32: 1-62.
- Karaman, G.S. 1978. On two *Melita* species (Fam. Gammaridae) from the Mediterranean Sea, *M. bulla*, n. sp. and *M. valesi* S. Kar. 1955 (Contribution to the knowledge of the Amphipoda 85). Boll. Mus. Civ. St. Nat. Verona, 5: 221-237.
- . 1981. Redescription of *Melita planaterga* Kunkel 1910 from Bermuda Islands with revision of genera *Melita* Leach and *Abludomelita* n. gen. (Contribution to the knowledge of the Amphipoda 119). Poljopriv. Sumarst., 27: 29-50.
- Lincoln, R.J. 1979. British marine Amphipoda: Gammaridea. British Mus. Nat. Hist., Publ., London, 818: 1-658.
- Ruffo, S., D. Bellan-Santini, G. Karaman, G. Krapp-Schickel, M. Ledoyer, A. Myers, & U. Schiecke. 1982. The Amphipoda of the Mediterranean. Vol. 1. Gammaridea (Acanthonotozomatidae to Gammaridae). Mem. Inst. Oceanog. Found. Albert Ier Pr. Monaco, 13: i-xiii, 1-364.
- Stephensen, K. 1944. Some Japanese amphipods. Vidensk. Med. fra Dansk Naturh. Foren., 108: 25-88.
- Yamato, S. 1987. Four intertidal species of the genus *Melita* (Crustacea: Amphipoda) from Japanese waters, including descriptions of two new species. Publ. Seto Mar. Biol. Lab., 32: 275-302.

- . 1988. Two species of the genus *Melita* (Crustacea: Amphipoda) from brackish waters in Japan. *Ibid.*, 33: 79–95.
- Zeidler, W. 1989. A new species of *Melita* (Crustacea: Amphipoda: Melitidae) from northern New South Wales with a note on the genus *Abludomelita* Karaman, 1981. *Proc. Linn. Soc. N. S. W.*, 110: 327–338.
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